

CLAIMS

What is claimed is:

1 1. A system, comprising:
2 a serial bus; and
3 a host device coupled to the serial bus, the host device coupled to control
4 communications on the serial bus, the host device having a interrupt logic element to
5 indicate to the host device to enter an interrupt mode, the host device to transmit a set
6 interrupt mode signal onto the serial bus after entering the interrupt mode, the set
7 interrupt mode signal to indicate to a client device to be coupled to the serial bus to enter
8 the interrupt mode.

1 2. The system of claim 1 wherein the host device is further coupled to withhold
2 transmitting a start of frame (“SOF”) packet after transmitting the set interrupt mode
3 signal for at least a time period equal to a frame duration.

1 3. The system of claim 1 wherein the host device is coupled to request data from
2 the client device in response to the host device receiving an interrupt request signal while
3 in the interrupt mode.

1 4. The system of claim 3 wherein the interrupt request signal further serves as a
2 resume signal when received by the host device while not in the interrupt mode.

1 5. The system of claim 3 wherein the host device is further coupled to request the
2 data only from client devices to be coupled to the serial bus to enter the interrupt mode in
3 response to receiving the set interrupt mode signal.

1 6. The system of claim 5 wherein a period of time required by the host device to
2 request the data from the client devices coupled to enter the interrupt mode is less than a
3 period of time of serial bus inactivity that will cause the client devices to enter a suspend
4 state.

1 7. The system of claim 1 wherein the serial bus comprises a universal serial bus.

1 8. A hub device, comprising:
2 a first serial bus port to be coupled to a host device;
3 a second serial bus port to be coupled to a client device, the first serial bus port
4 coupled to the second serial bus port to couple the host device to the client device;
5 a first output driver coupled to the first serial bus port to transmit to the host
6 device;
7 a second output driver coupled to the second serial bus port to transmit to the
8 client device; and
9 an interrupt logic element coupled to the first serial bus port and to the second
10 output driver, the interrupt logic element to distinguish between a suspend state and an
11 interrupt mode.

1 9. The hub device of claim 8 wherein the interrupt logic element is coupled to
2 indicate to the second output driver to enter a high impedance state in response to the
3 interrupt logic element receiving a set interrupt mode signal sent from the host device.

1 10. The hub device of claim 9 wherein the interrupt logic element is further
2 coupled to indicate to the second output driver to enter the high impedance state in
3 response to the interrupt logic element detecting an absent start of frame (“SOF”) packet
4 for at least a time period equal to a frame duration after receiving the set interrupt mode
5 signal.

1 11. The hub device of claim 8 wherein the first output driver is coupled to
2 transmit an interrupt request signal to the first serial bus port in response to receiving the
3 interrupt request signal from the second serial bus port when the hub device is in the
4 interrupt mode.

1 12. The hub device of claim 8, further comprising:
2 a non-interrupt capable interface, the non-interrupt capable interface to be enabled
3 when coupling a non-interrupt capable client device to the second serial bus port; and
4 an interrupt capable interface, the interrupt capable interface to be enabled when
5 coupling an interrupt capable device to the second serial bus port.

1 13. The hub device of claim 8 wherein the first and second serial bus ports
2 comprise universal serial bus ports.

1 14. A client device, comprising:

2 a serial bus port, the serial bus port to be coupled to a host device; and

3 an interrupt logic element coupled to the serial bus port, the interrupt logic

4 element to indicate to the client device to enter an interrupt mode in response to the

5 interrupt logic element receiving a set interrupt mode signal.

1 15. The client device of claim 14 wherein the interrupt logic element further to

2 indicate to the client device to enter the interrupt mode in response to detecting an

3 absence of a start of frame packet signal for at least a time period equal to a frame

4 duration after receiving the set interrupt mode.

1 16. The client device of claim 15 wherein the client device to drive an interrupt

2 request signal onto the serial bus port while the client device is in the interrupt mode, the

3 interrupt request signal to be sent in response to an interrupt event.

1 17. The client device of claim 14 further comprising:

2 a non-interrupt capable interface, the non-interrupt capable interface to be enabled

3 when coupling the client device to a non-interrupt capable hub device or a non-interrupt

4 capable host device; and

5 an interrupt capable interface, the interrupt capable interface to be enabled when

6 coupling the client device to an interrupt capable hub device and/or a interrupt capable

7 host device.

1 18. The client device of claim 16 wherein the interrupt request signal further
2 serves as a resume signal when the client device is not in the interrupt mode.

1 19. The client device of claim 14 wherein the serial bus port comprises a
2 universal serial bus port.

1 20. A method, comprising:
2 coupling a host device to a client device via a serial bus;
3 generating interrupt data in response to an interrupt event;
4 entering an interrupt mode at the direction of the host device;
5 sending an interrupt request signal, after entering the interrupt mode, to the host
6 device in response to the interrupt data; and
7 exiting the interrupt mode.

1 21. The method of claim 20 wherein the method is performed without the client
2 device entering a suspend state.

1 22. The method of claim 21 wherein entering the interrupt mode comprises
2 receiving a set interrupt mode signal from the host device.

1 23. The method of claim 22 wherein entering the interrupt mode further
2 comprises detecting an absence of a start of frame packet for at least a time period equal
3 to a frame duration after receiving the set interrupt mode signal.

1 24. The method of claim 21 wherein the interrupt request signal further serves as
2 a resume signal when sent by the client device in a suspend state.

1 25. The method of claim 20 wherein entering the interrupt mode comprises idling
2 the serial bus until the client device enters a suspend state, the host device initiating the
3 idle serial bus.

1 26. The method of claim 25 wherein sending the interrupt signal comprises
2 sending a resume signal from the client device to the host device while the client device
3 is in the interrupt mode, the host device capable to interpret the resume signal as an
4 interrupt request.

1 27. The method of claim 26 wherein exiting the interrupt mode comprises
2 transmitting a resume signal from the host device onto the serial bus for at least a period
3 of time required by the client device to recover from the suspend state.

1 28. A machine-readable medium on which a plurality of machine instructions are
2 stored that when executed by a machine performs the operations of:
3 entering a host device of a serial bus into an interrupt mode;

4 sending a set interrupt mode signal from a host device to a client device coupled
5 to the host device, the set interrupt mode signal to indicate to the client device to enter the
6 interrupt mode;
7 receiving an interrupt request signal sent from the client device; and
8 exiting the host device from the interrupt mode.

1 29. The machine-readable medium of claim 28 wherein the machine-readable
2 medium further includes instructions stored thereon to withhold sending a start of frame
3 packet from the host device after sending the set interrupt mode signal for at least a time
4 period equal to a frame duration.

1 30. The machine-readable medium of claim 28 wherein the interrupt request
2 signal further serves as a resume signal when received by the host device while not in the
3 interrupt mode.